

Exploring the Behavior of Highly Effective CIOs using Video Analysis

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ABSTRACT

Although recently several studies have addressed the required skills of effective CIOs, little is known of the actual behavior successful CIOs. In this study, we explore the behavior of highly effective CIOs by video-recording CIOs at work. The two CIOs videotaped were nominated as CIO of the year. We analyze the data in an innovative and systematic way by developing and using a behavioral leadership coding scheme. The analysis indicates that highly effective CIOs are good listeners. They also often verify previously made agreements; structure the conversation; and provide subordinates with factual information. We also compare the behavior of the highly effective CIOs to a sample of 25 highly effective middle managers. Whereas the CIOs spend little time defending themselves against their subordinates and are mostly involved in steering, middle-managers spend much more time defending themselves and show more support for their subordinates. We conclude that our new video observation-and-coding method is viable to analyze and better understand the behavior of CIOs.

Keywords

Chief Information Officer, behavioral observation, Determinants of CIO effectiveness, video-coding, IS Leadership, transformational leadership, transactional leadership

INTRODUCTION

The CIO is expected to be leading in creating business value from the wealth of rapidly emerging information technologies and enterprise systems. Although the position of CIO is important and sometimes even critical, it is frequently suggested that CIOs are generally not very effective leaders. Top level management in traditional areas such as marketing (CMO), operations (COO) and finance (CFO), often openly question whether the current generation of CIOs are fit for the task. CIOs are frequently criticized for their inability to operate and communicate effectively. Chatman (2005) notes, for instance, that “Too often the CIO is perceived by other managers as a ‘sheep’: he works hard, keeps his head down, is too busy to network or go beyond his job description and is lacking in the interpersonal skills department. The consequence of such behavior is a reputation as a ‘super techie’ who becomes a convenient scapegoat when the inevitable failure happens”. Surprisingly little research has been done on the actual behavior of CIOs to validate such alarming observations. Leadership studies have mostly been conducted with CEOs or middle-managers. Comparative research of CIOs especially on the day-to-day behaviors of CIOs at work is scarce. Determining the behavior of highly effective CIOs can be useful to at least two groups: not only can management and IT students learn more about managerial competences, but also CIOs and other IT management who are on their way to the top can learn what is needed to be an (even more) effective leader.

Numerous surveys have suggested a top ten of competences for CIOs in order to be effective. Andriole (2007), for instance, discusses seven habits of highly effective IT leaders: focusing on business models and processes before focusing on technology infrastructure or applications, focusing on distinction between operational and strategic technology and the chasm between technology concepts, prototypes and bona fide technology clusters and identifying and prioritizing business pain as they move toward the creation of business pleasure. The CIO portal (2007) gives a top 10 of qualities a CIO should have such as: leadership, business savvy and leveraging technology for the advantage of the enterprise. Enns et al. (2007) discuss how CIOs can be effective by using behavior influence techniques. Feeny and Willcocks (1998) describe the following core capabilities for the IS function: IS/IT governance, business systems thinking, relationship building, designing technical architecture and more. Willcoxson and Chatham (2006) test the accuracy of IT stereotyping. The results of their research

shows the behavioral and emotional characteristics of IT managers: comfortable alone and in large groups; little concern over rejection or acceptance by others; strong need for control and recognition; and a high task focus.

Most of these findings are based on anecdotal data. The more systematically conducted studies on CIOs are mostly done by means of questionnaires. We have identified only one study that used structured observation as a means of learning more about CIOs behavior (Stephens et al., 1992). This methodology was taken from Mintzberg's study on CEOs (1975). Stephens et al. identified the activities encompassing a CIOs job. Our present study shares with those studies the assumption that neither questionnaires nor interviews provide sufficiently solid knowledge on human behavior. Mintzberg asserted that we cannot simply ask a manager what he does; "He will most likely tell you that he plans, organizes, coordinates, and controls. Then watch what he does. Don't be surprised if you can't relate what you see to these four words" (Mintzberg, 1975). In order to conduct a much more objective empirical study, we extend Mintzberg's methodology of structured observation of CEOs to video-recorded analyses of CIOs.

In our study, we observe CIOs at work: using a video camera as well as a theoretically derived behavioral coding scheme. An extensive number of studies on leadership have preceded this research. One study in particular, which served as a basis for this study, is the explorative video-observation research of van der Weide and Wilderom (2006; van der Weide, 2007; see also Wilderom et al., 2008); twenty-five highly effective Dutch middle-managers were video-recorded during their regularly scheduled meetings with their subordinates. As in this current CIO study, these managers were video-recorded during their pre-scheduled or pre-planned, periodic meetings with subordinates. In our university's Leadership Lab, the data was reliably coded using a behavioral scheme rooted in the vast academic leadership literature. Our overall key research in our research into effective CIOs is: What is the behavioral repertoire of highly effective CIOs at work? In this explorative study, we first identify the behavioral repertoire of highly effective CIOs. Second, we aim to assess how CIO's are different from management in other functional areas. To address these goals, we video-taped two highly effective CIOs and we resorted to a comparison of their behaviors with the earlier analyzed 25 highly effective middle managers in similar settings: this created a reference frame with which the CIOs behavior can be interpreted. Since CIOs mostly lead middle managers, knowledge about behaviors of highly effective middle managers in general is beneficial to IT- and improvement-driven managers.

In this study we sampled two highly effective Dutch CIOs. With a video camera we recorded them operating in two regularly held, non-confidential meetings with their team of subordinates. We then rigorously analyzed the tapes. We will report their behavior and compare them with what is known in literature about the behavior of CIOs. We also compare our results to the very similar middle-managerial database we obtained (Wilderom et al., 2008). But first we introduce two styles that are central in the leadership literature: on which we base our 'specific behavioral lens' or behavioral coding scheme.

TWO LEADERSHIP STYLES

This section discusses the two most prominent leadership styles: transactional and transformational leadership. Bass et al. (2003) discuss the work of a number of authors who linked transactional, transformational leadership to managerial performance. It is shown that transformational and transactional leadership positively correlates with supervisory evaluations of managerial performance, recommendations for promotion, R&D project team innovations, and percentage of financial goals achieved in strategic business units (Bass et al., 2003).

Transactional leadership

Transactional leadership is a label for a down-to-earth leadership style. The underlying notion is that the interaction between a leader and team member is seen as a transaction. Team members are motivated to perform by reward and punishment. When a person joins the team, she accepts the authority of the leader. She is thereby also aware of the goals and objectives of the leader. When goals are achieved, team members are rewarded for their efforts (Bass et al., 2003). Bass et al (1985) discuss three dimensions of transactional leadership: *contingent reward*, *active management by exception* and *passive management by exception*. *Contingent reward* specifies what is expected from a team and what will be given in return if the expectations are fulfilled. *Active management by exception* focuses on closely monitoring team members: on their mistakes and errors and quickly taking appropriate actions as a result of these mistakes and errors. The leader can also wait for problems to arise or take no actions at all. This is called *passive management by exception*. In many studies it is shown that such a leader is highly ineffective.

Transformational leadership

Transformational leadership is seen in a leader who inspires team members with a vision of the future (Mind Tools, 2007). By appealing to emotional grounds and intellectual ideas a transformational leader influences his team members. Bass et al. (1985) describe a transformational leader as someone who knows how to make his team members aware of consequences of their own actions. Bass et al. define three dimensions of transformational leadership: *inspirational motivator*, *individual*

attention and *intellectual challenge*. A transformational leader is an *inspirational motivator* in the sense that he communicates his visions to the team members in an enthusiastic manner: in order to inspire them. Leaders with this style give also *individual attention* to team members; sincere or authentic interest is shown. The focus lies on personal development of each team member. *Intellectual challenge* is seen when a leader challenges team members to think critically about problems. A transformational leader also asks team members about their opinion on several issues and does not hesitate to question commonly held assumptions (Wilderom and van der Weide, 2006).

Augmentation effect

Empirical leadership research has shown that effective leaders adopt a combination of both leadership styles. This is known as the augmentation effect. It is not yet known what specific behaviors each style entails (Bass et al, 1985; Jung and Avolio, 1999).

OBSERVABLE BEHAVIOUR

Leadership is known to be a phenomenon that can be best understood by seeing (Hunt, 1999). Therefore, and also because observing leads to more objective data than questionnaires and interviews, we focus on analyzing a common, real-life or natural work situation of CIOs. We observed them during regular work meetings. Managerial studies have shown that managers spend most of their time on interpersonal communication with others (Stephens et al, 1992). This is one reason why we scheduled the videotaping of CIOs during meetings with their IT department members.

In our detailed, double coded analysis of the CIOs' we use same behavioral framework as van der Weide (2006; Wilderom and van der Weide, 2007; see also Wilderom et al, 2008). This also provided the opportunity to compare CIOs' behavior with that of the 25 highly effective middle-managers. Wilderom et al. (2008) based this framework on existing behavioral frameworks (Nauta, 1996), managerial behavioral studies (Yukl et al., 1990; Quinn, 1988) and other leadership studies (van der Weide, 2007).

Our behavioral framework is summarized in Table 1. In essence, the framework consists of eleven behaviors (see the first large column of Table 1). A short definition and example of each behavior is given in Table 1 as well. An elaborate codebook was used with which the coders learnt this framework. It included detailed operational definitions. The eleven behaviors can be categorized into three higher-order classes (self-defending, steering and supporting) as seen in Table 1. When seeing someone's behavior, classes cannot always be observed. For example, 'self-defending' is not always recognizable by the naked eye. Note, furthermore, that in order to code as precisely as possible, some of the eleven behaviors consist of more than one specific behavior. This is the case with directing, verifying, visionary leadership, professionally challenging and giving positive attention. This pilot study reports on the eleven behaviors, yet is based on a very careful and specific double coding regime in which all the 23 behavioral definitions of Table 1 (see Table 1, 2nd column) were utilized: by two coders.

Leadership Behavior and Styles

The behaviors or codes listed in Table 1 can be linked to the two leadership styles introduced earlier (Wilderom and van der Weide, 2006; see also Wilderom, 2008). By identifying the frequency of the coded behavior of the CIOs, we may then establish the ratio of transactional and transformational leadership among CIOs, thus examining the degree to which the leadership style is indeed the most desirable 'augmented' or combined style. Before we will do so, we will first map the specific behaviors of Table 1 to the two more broadly defined leadership styles.

It is often the case that leaders have limited time and resources to achieve their goals. They have to set priorities and cannot be always supportive to every co-worker. As a result, they may be in situations where they have to defend themselves. In a transformational leadership style, self-defending behavior is hardly contained. Transactional leadership, though, does contain such behavior. 'Being uninterested' is related to the transactional dimension *passive management by exception* where the leader does not show interest in problems. 'Providing negative feedback' is related to *contingents reward* and *active management by exception*; on the one side such a leader is negatively rewarding a team member and on the other side the leader is also acting upon the mistake of a team member by giving negative feedback. Also some sub-behaviors of 'directing' such as 'enforcing' can be related to transactional leadership. 'Verifying' is related to the transactional dimension *active management by exception*, in which case the leader closely monitors the progress of his team and reacts to problems as quickly as possible. A leader giving his or her co-workers 'positive attention' may be mapped onto the transactional style as well: through *contingent reward*.

Behavior			Definition	Examples
Self-Defending	TA	Being uninterested	Keeping distance, not showing any interest, not taking problems of co-workers seriously.	Talking to others while someone else is talking.
	TA	Defending own position	Defending own position or opinion, blaming others, emphasizing own importance.	"I can't help it; I have to do this because my boss says so."
	TA	Providing negative feedback	Giving negative feedback on the behavior of a co-worker.	"I'm not happy about the way you did this ..."
Steering	TA/TF	Directing	Contradicting: disagreeing with a co-worker. Enforcing a co-worker to (not) do something, pointing something out. Interrupting Delegating	"I do not agree with you." "The deadline is approaching. Pete, make sure you will be in time." Interrupting while someone is taking. "Lisa, will you make a note that ..."
	TA	Verifying	Coming back on previously made agreements, formulated (learning) goals, vision, etc. Confirming, asking what someone just said. Reacting surprised, (indirectly) asking for a reaction from co-workers.	"Last week we decided that... How are things now?" "Do you mean that the software is used for...?" "What??"
	TA/TF	Structuring the conversation	Structuring the meeting.	"OK! Now let's move on to point ..."
	TF	Informing	Giving factual information to co-workers.	"The budget for this project is ... Euros."
	TF	Visionary leadership	Determining the course. Giving own opinion about business related issues and/or future goals. Explaining future goals.	"Our goal/vision is ..." "My opinion is that we can do ..." "We can achieve our goals, by ..."
Supporting	TF	Professionally challenging	Asking co-workers for ideas, stimulating them to think along, organizing brainstorm sessions, inviting for discussion. Working together with co-workers properly, increasing mutual trust.	"How do you think we should do this?" "Ah, we'll work that out together."
	TA/TF	Giving positive attention	Positively reinforcing co-workers' behavior, giving compliment. Encouraging, positively stimulating co-workers' behavior, enthusing. Agreeing Being friendly, showing sympathy, welcoming. Showing personal interest, showing empathy	"You did it very well! The board of directors was happy with you." "This is a nice training; it's really tailored for you." "That's a great suggestion. I totally agree!" Creating an open and friendly environment: "How are you doing now? How is everyone at home?"
	TF	Listening	Listening, verbally and non-verbally showing that the speaker is being understood.	Nodding head. (yes) Eye contact

Table 1. Behavioral Framework with Definitions and Examples

'Delegating' which is one of Table 1's sub-behaviors under 'directing' can be considered an important part of the transformational dimension *individual attention*. Also 'informing' is related to this style's dimension *individual attention*, because by informing the subordinates, leaders pay attention to the individual. The behavior 'visionary leadership' can be

associated with the transformational leadership style, because a transformational leader is said to *inspirationally motivate* co-workers by providing meaning through communications on future goals/visions and current issues. ‘Professionally challenging co-workers’ can be related to the dimension *intellectually challenging*. Although some sub-behaviors of ‘giving positive attention’ are linked to transactional leadership, other sub-behaviors of it can be related to the dimension *inspirational motivator* as well as the dimension *individual attention* of the transformational style. Finally, elements of the transformational leadership style *inspirational motivation* and *individual attention* are also seen when a leader is observed ‘listening’ to his or her subordinates.

Research into Behavior of CIOs

The behavior of CIOs has not been studied extensively. Willcoxson and Chatham (2006) test the accuracy of IT stereotypes using the Myers-Briggs Type Indicator (Myers and McCaulley, 1985) and the Fundamental Interpersonal Relationship Orientation-Behavior questionnaire (FIRO-B, 1997). The results show the following behavioral and emotional characteristics of IT managers: comfortable alone and in large groups, little concern over rejection or acceptance by others, strong need for control and recognition, preference for shared rather than sole responsibility, not dependent, some doubts about ability, fear of criticism and failure, defensive yet want affection and cautious about initiating close personal relationships. Willcoxson and Chatham also identify the overall leadership style of the studied CIOs; task focus, meets deadlines, provides structure, gives directions, adheres to final decisions, develops challenging goals, and gains legitimacy through task skill and proficiency. These characteristics can be linked to our proposed behavioral framework as seen in Table 2. Blank spaces are present in that table as well since not all elements of Willcoxson and Chatham’s findings can be linked to the behavioral lens of this study.

Leadership style of CIOs (Willcoxson & Chatham, 2006)	Behavior coded in our video-based study
Task focus	Verifying
Meets deadlines	Verifying
Provides structure	Structuring the conversation
Gives directions	Directing, Visionary leadership
Adheres to final decisions	-
Develops challenging goals	Professionally challenging
Gains legitimacy through task skill and proficiency	-

Table 2. Relationship between leadership style of CIOs (Willcoxson & Chatham, 2006) and behavioral elements

METHODOLOGY

Our study takes a groundbreaking new perspective on CIO studies. In this explorative study we used the video-camera as our main method of data collection as well as a theoretically derived analytical coding scheme.

Sampling

Our population is the group of *highly effective* CIOs in the Netherlands. Our pilot sample is drawn on the basis of a yearly jury event called *CIO Day*. (This yearly event is organized by CxO media (2007), publisher of magazines, websites, yearbooks and e-zines for CxOs.) The CIO Day is organized for CIOs and IT managers of large organizations in the Netherlands. In the presence of 350 IT experts, fourteen CIOs were nominated in 2006 for the CIO of the year award. These fourteen CIOs were selected by a jury consisting of five members from the editorial department of the CIO magazine, the market-parties (such as ICT-service providers), and the CIO Platform Nederland on the basis of the following criteria (CxO media, 2007):

- The CIO has been active for minimally two years in his or her current function.
- The CIO has had at least one (major) project under his or her supervision in the past minimally one and a half years.
- The CIO carries the end-responsibility for the ICT-strategy and/or –organization.

The thirteen nominees and the winner of the award were contacted to participate in our video study. An e-mail was sent to the CIOs informing them about the research methodology and importance of the research. The winner of the award and one of the nominees of this group agreed to participate. Both CIOs are male. One CIO is active in the Health Care Insurance

industry, the other CIO is active in the Travel Industry. The next step was to videotape in a non-obtrusive way some of their regularly scheduled meetings with subordinates.

Data collection

The CIOs were observed in pre-planned, periodic meetings with their co-workers by means of a video-camera. For each CIO, two pre-scheduled meetings on two different days were recorded in which the CIO and the members of his IT department discussed the progress of their work. The camera was placed on a fixed position in the room using a tripod and care was taken to reduce researchers' influence. Immediately after each recording, each member present at the recorded meetings was asked to fill in a short questionnaire about the degree of representativeness of the behavior of the CIO at the particular meeting. The CIO was asked the same question about his own behavior and that of his co-workers present at the recorded meetings. This was done to control for a possible Hawthorne effect (a form of reactivity whereby subjects improve an aspect of their behavior being experimentally measured simply in response to the fact that they're being studied).

Coding scheme

All recordings (in total approximately 215 minutes) were coded and analyzed in the lab using the software package 'The Observer' (Noldus – The Observer, 2008). This software allows users to define codes (behaviors) and compare the codes of various coders. First the eleven codes of the behavioral framework were entered into the Observer. Then, sentence by sentence, each coder analyzed the recorded videos according to our elaborate operational definitions of the behavioral framework. In order to gain objectivity, the codebook was studied intensively by two people who then coded the videos independently. Subsequently, the assigned codes were compared to each other. The two coders discussed each difference intensively by using the codebook, recoded the disputed sentences, and reached an average inter-reliability percentage of 96%.

Results

In our reporting of the behaviors of the CIOs, we will report the (standardized) frequency which is the number of times a behavior occurs. The average of the frequencies of all four analyzed meetings is depicted in Table 3.

	CIO 1 (in %)	CIO 2 (in %)	Average both CIOs (in %)
Being uninterested	0,29	0,00	0,14
Defending own position	0,28	0,21	0,25
Providing negative feedback	3,24	0,23	1,74
Directing	4,82	8,44	6,63
Verifying	22,45	6,17	14,31
Structuring the conversation	10,15	13,49	11,82
Informing	9,16	13,35	11,25
Visionary leadership	6,85	12,55	9,70
Professionally challenging	0,76	2,00	1,38
Providing positive feedback	5,16	6,68	5,92
Listening	36,83	36,87	36,85

Table 3: Occurrences of Behaviors (as % of total) in the Four Recorded Meetings between CIO and Subordinates

Clearly, *listening* is done remarkably often by the highly effective CIOs. And that did not make them passive since the number two observed behavior is *verifying*. And *structuring the conversation* and *informing* were observed as the CIOs' third and fourth most often occurring behavior. On the other extreme, *being uninterested* and *defending own position* were seen

less than 1% of the times. Note that the results of the employed brief questionnaires showed that the individuals with whom the CIOs met as well as the CIOs themselves felt little disturbing influence of the camera.

We will now discuss a comparison between our two CIOs and the findings of van der Weide's (2007) study of 25 highly effective middle managers. We note some similarities and differences. Noteworthy is that middle-managers are *listening* 35,51% of the time and our two CIOs scored almost equally high (36,85%). The behaviors *providing positive feedback* and *verifying* did also not differ much among the two types of leaders. The biggest difference between the CIOs and middle-managers pertains to the behavior: *defending own position*. Middle-managers were observed to defend their own position in 5,72% of the time, whereas the CIOs only score 0,25% in this regard. This difference can be explained by the fact that the CIO's position is at the top of the hierarchy, having more power. As a consequence, effective CIOs do not need to defend their positions as much as effective middle-manager have been seen to do during meetings with their subordinates. This difference is comparable, to some extent, to the findings of Willcoxson and Chatham (2006) who noted effective CIOs to show little concern over rejection or acceptance by others. Another big difference between the two groups is seen in the behavior *being uninterested*. In contrary to the middle-managers, the effective CIOs are more focused on innovation. Hence effective CIOs seem to discuss more inter-actively with their subordinates the planned innovations. Naturally, the innovation success rate is known to be largely dependent on subordinates. This could be an explanation why CIOs show very little disinterest in what their subordinates have to say.

When comparing the coded results of this pilot study with what is known in the literature we see many similarities with Willcoxson and Chatham (2006), especially with *verifying* and *structuring the conversation* which were the second and third most seen behaviors of our CIOs. In terms of Willcoxson and Chatham both behaviors map closely with their 'task focus' and 'meeting deadlines and providing structure.' Also 'giving direction,' as suggested by Willcoxson and Chatham, was seen in the behavior of our CIOs as *directing* and *visionary leadership*, with a total of 16,33% of the time. Willcoxson and Chatham noted that developing challenging goals is crucial in CIO leadership style. We related this to *professionally challenging*. However this behavior was hardly shown in the analyzed meetings (1,38%). What we did code as important, something not mentioned in other studies, is *informing*. This behavior was invoked by our CIOs 11,82% of the time. Thus, this research adds to the existing research on CIOs by identifying behaviours which were not reported before and by providing a quantitative and fairly objective analysis of the behaviours reported before.

Mapping the results of the CIOs to the leadership theory shows that transformational leadership (*informing, visionary leadership, professionally challenging, listening*) was seen 59,19% of the time. Transactional leadership (*being uninterested, defending own position, providing negative feedback, verifying*) was seen 16,44% of the time. Other behaviours that can belong to either transformational or transactional styles summed to a total of 24,37%. Thus, there is a clear indication that the behaviour of the CIOs leans more towards a transformational style of leadership. These findings also confirm the so called 'augmentation effect' that one finds in the scholarly leadership literature; it was also concluded to be superior by Stephens et al. (1992) for this particular type of leaders. Thus, individuals aiming for the position of CIO or CIOs seeking to become more effective are advised to show transformational behaviours and to a lesser extent, yet at the same time, also transactional behaviours: in a mix that shows availability of a well-timed and well-balanced repertoire of various leader behaviours, like the ones taken under the loupe in this study.

CONCLUSION

A better understanding of effective CIO behavior can help to improve current and future generation of CIO's by monitoring their behavioral patterns and improve these through coaching and training. Although several studies have suggested ways for CIOs to be effective, research into actual and desired leadership behavior of CIOs is scarce. In this study we present a framework to study actual CIO behavior and explore the use of video and coding to learn more about what makes a CIO effective. The results indicate that effective CIO's spent considerable time on listening, verifying, structuring the conversation and informing. They prevent to be uninterested, provide negative feedback or spend much time on defending their position. Quite frequently they direct their subordinates and provide positive feedback. In this behavior they differ only on some aspects from highly effective middle managers (CIOs spend less time on defending their position). Furthermore, our results indicate that effective CIOs mainly demonstrate behavior that is part of a transformational leadership style. They also demonstrate transactional leadership behavior but to a lesser extent.

This explorative study yields interesting results that can be further enhanced in future studies of CIOs. Some recommendations for future research involve recording more meetings, meetings of larger duration and recording meetings held on different days. This will make the CIO and other members of the meeting get used to the camera and avoid the influence of the mood of the CIO on his behaviour. For example, the CIO might behave differently when he or she is in a bad mood. By recording a larger number of similar CIO-chaired meetings, the CIO is likely to get used to the camera (termed 'camera immunity' by Smith et al., 1975). This in turn will lead to more valuable/valid results. We also recommend splitting more of the behaviours into the sub-behaviours and coding the videos according to these sub-behaviours in order to get more in-depth information in regard to the determination of how much transformational and transactional leadership is seen in the leadership styles of effective CIOs. In future follow-up studies we would also wish to collect evaluative performance data in addition to our behavioural recordings of CIOs as well as questionnaire-based data from subordinates and other CIOs' collaborators.

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